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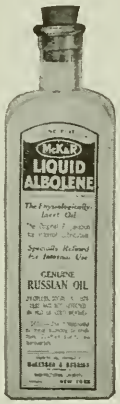

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SURGERY.

THE PART OF THE PRACTITIONER IN THE TREATMENT OF THE PRE-OPERATIVE STAGE OF ENLARGED PROSTATE.

WALKER, J. W. T. (*Brit. Med. Jour.*, Jan. 15, 1921) classifies the risks which the patient suffering from an enlarged prostate undergoes, either with or without operation, as follows:

1. Gastro-intestinal risks,
2. Pulmonary risks,
3. Circulatory risks,
4. Nervous system risks,
5. Urinary risks.

These groups he discusses. He divides the patients into three types,—first, the patient with chronic retention of urine and partial renal failure, or uraemia; second, the patient with frequent micturition, difficulty, and a well-marked enlargement of the prostate, and about six ounces or eight ounces of residual urine; third, the patient who complains of a little difficulty in starting micturition, and may get up several times at night. The prostate is found to be very large and elastic. There may be little residual urine.

He emphasizes the following points in considering the question of operation for his patient:

1. Enlargement of the prostate is a progressive disease, the rate of increase of which we cannot foretell.

2. As the prostate enlarges, the patient grows older, and is less able to withstand the effect of uraemia or sepsis, or the effects of a severe operation.

3. When the symptoms become acute, much damage has already been done to the kidneys; and, although improvement may follow operation, much of the damage is permanent.

4. Some adenomatous prostates become malignant.

5. The mortality of catheter life is higher than that of prostatectomy.

6. A very large proportion of the cases of enlarged prostate treated by catheter are forced eventually to undergo operation.

7. The prognosis in such cases is much graver than if the operation had been performed without a period of catheter life.

8. A large proportion of the deaths after prostatectomy are due to the sepsis caused by pre-operative catheterization or the back pressure and renal inefficiency due to delay in submitting to operation.

[J. B. H.]

TUBERCULOSIS OF THE KIDNEY IN WOMEN.

BRADY (*Johns Hopkins Hosp. Bull.*, January, 1921) reports his results of surgical treatment in cases of tuberculosis of the kidney in women. He summarizes his paper as follows:

1. In our cases of renal tuberculosis, in 18% there has been a family history of tuberculosis.

2. In 60% of the cases of tuberculosis of the urinary tract, the lesion has been in the right kidney; in 35%, in the left kidney; and has been bilateral in four patients.

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(Continued from page iv.)

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9. Of the seven patients not operated on, four are known to be dead and the other three left the hospital in a very bad condition and are probably now dead, although we have no definite information about them.
10. The three women on whom simple nephrotomies were performed all did badly.
11. The ultimate result is known in forty-two out of the sixty-seven cases in which the kidney was removed, or in 62% of the cases.
12. Seven of these forty-two patients may be classed as greatly improved and are now alive, six years after their operations; twenty-five are entirely well, with an average period of eleven years since they were discharged from the hospital. This means that 16.5% of the women of whom we have records have been greatly improved by their operations and 59.5% have been entirely cured.
13. Comparison of the results obtained when the ureter is removed with the kidney and when it is left *in situ* shows that, although the ultimate results are the same following the two methods, the post-operative sinus heals more rapidly when a nephro-ureterectomy is done, and this, therefore, seems to be the operation of choice when the patient's condition warrants a prolongation of the anesthetic.
[J. B. H.]

CARCINOMA OF THE POST-CRICOID REGION (PARS LARYNGEA PHARYNGITIS) AND UPPER END OF THE ESOPHAGUS.

TURNER, A. L. (*Edin. Med. Jour.*, December, 1920), in an article excellently illustrated with numerous plates, discusses the general subject of carcinoma of the upper end of the esophagus. He takes up the anatomy and pathology of the condition, the sex and age incidence, the duration of the disease, mode of onset and diagnosis, the signs and symptoms, and prognosis and treatment. He gives various illustrative cases. [J. B. H.]

RENAL COMPLICATIONS OF ACUTE LACUNAR TONSILLITIS.

CRONK, H. L. (*The Practitioner*, November, 1920) discusses the complications if acute lacunar tonsillitis, with numerous diagrams, charts and illustrative cases, and comes to the following conclusions:

1. Albuminuria is very common in acute lacunar tonsillitis.
2. This albuminuria is not always of the simple febrile type.
3. True febrile albuminuria does occur in some diseases, such as influenza.
4. Nephritis occurs in a small, but not negligible, number of cases of tonsillitis; it is of the latent variety with few signs.
5. The nephritis occurring in lacunar tonsillitis is similar to scarlatina in its tendency to recovery.

[J. B. H.]

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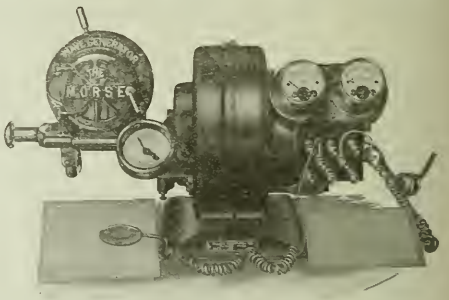

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THE ESSENTIAL FACTORS OF CANCER CAUSATION.

BY JAMES W. SHANNON, M.B., SAN DIEGO, CALIFORNIA.

BEFORE we can be in a position to understand the reasons for cancerous growth, or to deal intelligently with the subject of its treatment or prevention, we must study it, not from the limited viewpoint of clinical or experimental investigation, but in the broadest manner possible, namely, as a natural phenomenon.

All phenomena result from the action of an appropriate form of energy upon a suitable kind of material under fitting conditions, and if we are careful to avoid the error, often committed by thoughtless persons, of confusing the causes of phenomena with the conditions under which they arise, we shall, having once acquired a correct idea of the nature of any phenomenon, have no difficulty in gaining an insight into its cause. In other words, it may be said that a correct understanding of the character of a phenomenon implies a knowledge of the kind of energy or activity which caused it. We do not suppose, for example, that growth in a plant or animal could be *caused* by chemical action, heat, electricity, or, in short, by any kind of stimulus other than that which we recognize as vital energy or vitality, though from every-day experience we can hardly fail to realize that, *after* a plant or animal is brought into being, chemical action, heat, and other forms of physical energy contribute towards its growth and development, and, in fact, are a most important part of the conditions necessary for the continuance of its existence.

Fortunately for our studies there is no dispute concerning the nature of cancer, but on the contrary, so fully are all who are qualified to judge of it convinced that cancerous disease is a manifestation of growth, that in text-books and other medical writings the term "*malignant new growth*" is most commonly used to distinguish it from other, and less serious, varieties of tumor. If, then, the nature of cancer is that of growth, it is clear that its manifestations belong to the order of vital phenomena, and until it can be proved that vital phenomena have ever arisen, or ever can arise, from the action of any form of physical force, we have no choice but to believe that, in common with all kinds of growth, normal or abnormal, healthy or otherwise, cancerous growth is due to one fundamental cause only, namely, vital energy. Hence, while we may recognize many kinds of physical action as being a part of the *conditions* under which cancerous phenomena

manifest themselves, yet in seeking for the cause of cancer we cannot hope to be successful unless we study the problem in the light of the knowledge of vital phenomena which is available to us.

In the simplest form of animal life an individual consists of a single cell of microscopic size, and because of its primitive character, it might seem that there is nothing in common between it and such a highly organized animal as a human being; but exactly the reverse is true. Not only are highly organized animals composed of the same kind of material (protoplasm) as those of the simplest type, but the active and characteristic elements of their organs and tissues are cells, which (though living in a special environment and differing, in some cases, but not in all, from single-celled organisms in shape and other minor particulars), from a biological standpoint, may be, and are, regarded as identical, in all fundamental respects, with the most primitive form of animal life, namely, protozoal organisms. In short, it may be said that whereas an animal of the most primitive type consists of one cell only, an animal of an advanced type is composed of an enormous number of essentially similar cells in combination, each of which, notwithstanding that it is a part of a complex individual, is, nevertheless, to be regarded as a biological entity. Furthermore, there is no function necessary to its existence or to the continuation of its species, performed by the most highly organized being which is not equally well performed by the most primitive organism; but what the former does on a large scale, the latter does in miniature. Thus, for example, according to their respective requirements, the processes of respiration, digestion, assimilation, secretion, excretion, reproduction, and reaction to environmental conditions, are carried on in the case of a single-celled individual, not less perfectly and in a manner virtually identical with the same functions in the case of individuals of the most complex type. Whatever difference there may be between the extremes of animal life, therefore, is certainly not one of nature, quality, substance or function, but of degree only.

A cancerous formation, similarly to other manifestations of life, consists of cells, but the cells of every cancer are not alike; *they vary in accordance with the character of the cells in the organs and tissues of the body, and are always identical in type with the cells present at the seat of origin of the disease.* Thus, for example, the cells of a skin-cancer are identical with the normal cells of the skin, of a breast-cancer with those normal to the breast, of a stomach-cancer with those normal to the stomach, and so on in respect to every organ or tissue which is the primary seat of cancerous disease. In connection with this part of the subject it is worthy of notice that while there is a type of cancer-cell to correspond with every important organ or tissue, yet there are two notable exceptions, namely, the brain and the voluntary muscles. Cancer has never been known to *originate* in the cells of the brain or in the cells of those muscles which are under the control of the will, and moreover, cells having the character of those in the brain or voluntary muscles have never been found in any cancerous growth. The fact that the brain and voluntary muscles are immune from cancer is of the greatest significance when the reasons for it are understood; but they are somewhat too technical for discussion at the present time. The freedom of the brain and voluntary muscles from cancer is, however, perfectly consistent with the absence from neoplastic formations of cells having the characters of brain cells or voluntary muscle-cells, and also with the rule that the cells of every cancer correspond in type with the cells of the organ or tissue in which it originated.

The growth of every living thing, whether of simple or complex individuals as a whole or the organs and tissues thereof, is the result not of enlargement, but of an increase in the number of the cells of which they are constituted. With certain exceptions (chiefly nerve-cells and voluntary muscle-cells) it may be said that the cells of every organ and tissue of the body have the power to reproduce themselves by a process of simple division, but special attention should be given to the fact that *the offspring is always of the same type or species as its parent cell.* If this were not so, the existing uniform arrangement of species would disappear.

Cancer cells reproduce themselves in the same manner and by the same process as the normal cells of the body, but with the difference that whereas the growth of normal cells proceeds in accordance with a preordained plan and is controlled with a view to the structural and func-

tional requirements of the body, the growth of cancer cells is excessive, irregular, disorderly, destructive, and progresses at the expense of the body and independently of its controlling mechanism. Notwithstanding the evil character of cancerous growth, it should never be forgotten that just as there is no fundamental difference between the most vicious criminal and the most virtuous person, so in like manner there is no difference between cancerous and normal growth.

Inasmuch, then, as cancer cells are identical in type with the normal cells of the tissues or organs which are the primary seat of cancerous disease, and that tissue cells cannot reproduce any kind or species other than their own, it follows that *cancer cells are the offspring of, and belong to the same species as the cells of the tissue or organ in which they originated.* Having regard, then, to the excessive character of the growth of cancer cells, and to the fact that growth implies vital energy or vigor, we are forced to conclude that cancer cells are tissue cells endowed with a supernormal degree of vitality. Having regard, furthermore, to the fact that in the beginning every cancerous growth is of microscopic size, the problem resolves itself into the question, how, or by what kind of stimulus are the normal cells of a minute portion of an organ or tissue caused to depart from the regular course of their development, and to reproduce themselves in excess of the requirements of the body? To this only one answer is possible,—*the stimulus of fertilization.*

Fertilization, or the act of union of a cell having male potency with one of female nature, is the process by which living things, whether simple or complex, are created, and vital energy is generated. Ordinarily such a union only occurs between cells belonging to the same species, but it is a matter of common knowledge that within certain limits cross-fertilization, or sexual union of a cell with one of foreign species, is possible even among highly organized animals, and there is reason to believe that it is much more readily possible among animals of a primitive type. It is important to remember that, where fertilization occurs between animals of different type, *the offspring, or hybrid, always resembles its maternal parent.* Having united with the egg-cell, or female element, the male cell or fertilizing element *entirely disappears*, leaving the egg-cell, for a time, apparently unchanged; in reality, however, a change, far too subtle for analysis, has occurred in the constitution of the cell, which, in view of the result which we know must follow, entitles us to regard it not only as a fertilized cell, but also as a *new individual.* It is interesting to observe that, at the earliest period of its existence, every individual, regardless of its species, consists of a single cell, and that from its outward appearance there is nothing to indicate whether it will continue to exist as a single cell or develop into a highly organized animal; if, however, we know the species to which it belongs, we can predict its final character with the utmost certainty, and conversely, if we know its character, we are able, with an equal degree of certainty, to refer it to the species to which it belongs.

If, then, we believe that the stimulus of fertilization is the primary cause of growth in normal tissue cells, we must, if we are consistent, also believe that the supernormal reproductive activity of cancer cells is due to the same kind of stimulus. In view of the fact, however, that normal growth is regulated in accordance with the requirements of the body as a whole, while cancerous growth is destructive, and independent of control, we cannot believe that normal growth and cancerous growth are due to the *same act of fertilization.* All the normal cells of the body were created together by a single act of fertilization, and each cell or group of cells is a part of a system the plan of which was an inherent quality of the egg-cell from which they were derived; hence their growth is regulated in a systematic manner for the benefit of the body as a whole. If, however, we may suppose that each group of cells, as, for example, those of the skin, liver, lungs, kidneys, etc., was the result of an independent act of fertilization, we cannot imagine that the consequence could be otherwise than a disorderly arrangement of structures growing and functioning regardless of each other and without any intelligible purpose—that is, growing in practically the same manner as cancer grows in reality. A growth such as cancer, which, in the sense of the foregoing, is independent of the controlling mechanism of the body, must therefore arise from an independent act of fertilization, and, having regard to the identity of cancer cells with tissue cells, this implies *fertilization of a tissue cell.*

The foregoing is only a very meagre outline of those considerations which seem to be of the greatest importance in the study of new growths in general and of cancerous new-growth in particular, but if it serves to direct attention to the fundamental principles which govern the phenomena of both normal and abnormal growth, it will suffice for the present purpose. The proof that cancer is due to an independent act of fertilization or to any other cause depends, not on theoretical considerations, but on facts which are open to verification at any time. Since, however, in the minds of many persons there seems to be an exaggerated idea of the importance of those facts which are revealed by experiment, together with a disposition to underestimate the value of any truth which has not been disclosed in a research laboratory, it may not be amiss to point out that, as the history of cancer for the past twenty years abundantly shows, if in some respects experimental research has tended towards our enlightenment, in others it has only served to mislead and confuse. From an unprejudiced viewpoint, it should seem that, regardless of their source, all facts are worthy of attention which really contribute to our understanding of cancerous disease; but this presupposes an ability to interpret them correctly,—which is the whole gist of the matter.

With the methods at our command it is not possible, as in the case of tuberculosis, typhoid fever, malaria, and many other diseases, to isolate or render visible the causative agent of cancer, for the reason that the process of fertilization demands that the male organism or fertilizing agent shall disappear, or cease to exist as a distinct entity. If, then, we believe that all growth, including cancerous growth, is primarily due to an act of fertilization, it is futile to attempt to isolate or demonstrate the fertilizing element concerned in the process, not only because we may be as certain of its existence as though we had actually seen it, but also because, for practical purposes, its isolation or demonstration is a matter of little or no importance providing we are able to control its action. At the present time, therefore, a knowledge of the nature of the causative agent of cancer, of the conditions necessary for its action on the body, and of the means by which it may be controlled, is calculated to serve our purpose much better than information concerning its size, shape, and other physical features.

The cancer problem consists of a large number of minor problems, each of which, though distinct from all the others, is, nevertheless, a part of a consistent whole. The problem of the nature of cancerous growth has already been considered; but, in addition, there are problems relating to the distribution of cancer throughout the world, to its distribution in countries, states, cities, and localities, to its appearance in animals other than human beings, to its prevalence as determined by age, sex, occupation, custom, habit, social position, etc, to the differences in the liability of various organs and parts of the body to its attack, to its relation to other diseases, to its progressive increase, to its prevention, and to many other questions which need not be specified at the present time. Problems such as these have formed the subject of careful study for many years, but with results which, being of a negative kind, can hardly be said to have advanced our knowledge in any definite respect: in proof of which the following sentences from a recent work,* representing the view of a number of eminent authorities, may be cited:

"All the resources of chemistry, physics, physiology and biology, and the study of immunity reactions have been brought to bear upon the problem, and the work is still being carried on; but as yet, the ultimate cause of cancer is not known. Many important facts, however, have been discovered, and by every fact contributed the growing structure of our knowledge of the disease is built up until, for instance, we now know many things that cancer is *not*, and useless expenditure in investigation along these lines has ceased."

There is reason to think that this unsatisfactory state of things is due, in a large measure, to a failure to fully realize the necessity of submitting our judgment to the guidance of those principles which clearly underlie all phenomena of the order to which cancer belongs, and which appeal to us as being the best suited, not only to direct the course which our investigations must follow in order to be successful, but also to serve as a criterion by which to estimate the value of the conclusions arising therefrom. In a matter of such a vast extent as the cancer problem, and one which affords

* "What We Know About Cancer," a handbook for the medical profession, prepared by a committee of the American Society for the Control of Cancer, and published jointly by the American Society for the Control of Cancer and the Council on Health and Public Instruction of the American Medical Association.

so many opportunities for deviating from the true course, it is reasonably certain that, without some guiding principle, we can never know whether we are advancing toward the point which we desire to reach or whether, like travellers lost in a forest, we are wandering in a circle, and must continue to do so until our powers are exhausted.

Since we cannot regard the cancer problem as being otherwise than consistent throughout, it follows that any theory, hypothesis, or explanation which is true of the cause of the phenomenon of cancerous growth must be true of every manifestation of the disease, regardless of the part of the body affected or of the conditions and circumstances under which it arises. According to our belief, then, that the stimulus of fertilization is the exciting cause of cancer, we may judge of the merits of any solutions of the cancer problem or any part thereof; the test of their value is the degree in which they are consistent with this principle, and also with each other. If the various opinions or hypotheses purporting to explain the causation of cancer which, from time to time, have received more or less attention, are tried by this test, it will be found that all are untenable and that few are deserving of more than a superficial notice; of these the attempt to explain the causation of the disease by the supposed influence of long continued stimulation or "chronic irritation" is worthy of some consideration, partly for the reason that it is regarded with the most favor at the present time, but more especially because it represents a half of the truth.

According to the sense in which the word "irritation" is obviously used in the foregoing expression it can only mean chemical, thermal, mechanical, bacterial, or other forms of physical stimulation, all of which, by reason of the nature of their action upon the tissues of the body, are totally disqualified from taking a leading part in the causation of the phenomenon of cancerous growth, though, as it will appear hereinafter, some form of physical action is always concerned in the creation of the *conditions* under which cancerous phenomena appear. The consequences of physical action—including bacterial action—upon the tissues of the body never tend to be otherwise than destructive in some degree, whereas the nature of cancer is obviously constructive, and inasmuch as it is impossible to reconcile the effects of physical action with the nature of cancer, it is equally impossible to accept the doctrine of "chronic irritation" as being either sound or scientific. It seems doubtful whether this doctrine would ever have been received with any favor were it not that it harmonizes with a number of facts which, in combination, constitute one of the most important features of the cancer problem; thus, for example, it is consistent with—but does not explain—the fact that cancer of the lip or tongue follows tobacco smoking, that cancer of the skin of the hands follows exposure to x-rays, that chimney-sweep's cancer appears in parts of the body which have been irritated by the soot, that cancer of the stomach arises at the site of a pre-existing wound or ulcer, and so forth, through a long series of cases, all of which have one feature in common, namely, the presence of a lesion prior to the appearance of cancer. The fact that cancer develops at the site of a preëxisting lesion is too well established to be successfully disputed, but it does not follow that, because of this, lesions or the irritation resulting therefrom are the *cause* of cancer; for, by the same kind of logic, we might say, with equal reason that because tuberculosis has frequently been observed to develop in a part of the lung which was previously the seat of pneumonia, pneumonia therefore is the cause of tuberculosis. Certain facts, to appear in due course, will enable us to realize the full extent to which the doctrine of "chronic irritation" is fallacious; for the present, it must suffice to state that it is altogether inconsistent with the distribution of cancer throughout the world and in countries, states, cities and localities; with the disproportionate manner in which it attacks various parts and organs as, for example, the stomach, in which it is exceedingly common, and the lungs in which it is extremely rare; with its relation to civilization, and its rate of increase in this and other civilized countries; with its relation to typhoid fever and other water-borne diseases, and to a large number of other questions equally important in the study of its causation.

The protective surfaces of the body, that is to say, the outermost layer of the skin and the innermost layer of the mucous membranes are composed of cells which, by virtue of the fact that they are dead, cannot respond to the stim-

ulus of fertilization. Their function is to shield the living cells from external influences, which they do very effectually so long as they are intact; but if, as the result of disease or injury, a defect or lesion occurs in any part of their surfaces, the living cells are then exposed to various hurtful influences, and among others to the action of fertilizing agents. A fertilizing agent cannot gain access to the living cells of the tissues through any part of the protective surfaces of the skin and mucous membranes except at the site of a lesion, and it is for this reason, and not because of any form of pathological irritation that, in the vast majority of cases, cancer arises at the site of a pre-existing lesion. A lesion takes no active part in the causation of cancer, but serves merely as a gateway or portal for the admission of fertilizing agents to the living cells of the tissues, nevertheless, it would be a serious mistake to suppose that, because its part is only a passive one, it is of less than first rate importance, because in due time it will be shown that of the few conditions or factors which are really essential in the causation of cancerous disease a lesion is one.

In the great majority of cases the site of a cancer is determined by a lesion, but occasionally it happens—and more especially in wounds due to injury—that, instead of uniting with a tissue-cell in the immediate neighborhood of the lesion, a fertilizing agent may enter the blood-stream or lymph-stream and being carried therein may give rise to a cancer in organs and parts of the body which are never directly exposed to external influences, as, for example, the ductless glands, and the bones and fibrous framework of the limbs and other parts. Also, there is reason to believe that, more particularly in the case of the breast and possibly of other glands, fertilizing agents may travel through the ducts to the cells of the breast substance proper, and so give rise to cancer in the deeper parts of the organ. At first sight, it might seem that such cases are contrary to the rule that a lesion is an essential condition in the causation of cancer, but having regard to the fact that the ducts of the breast and possibly of other glands serve the same purpose as a lesion, namely, to admit fertilizing agents to the living cells of the tissues, we cannot fail to perceive that, though the details of the process are somewhat different, the principles involved are the same. There is, therefore, no inconsistency in such cases, and if we choose to regard them as exceptions to the rule, it must be as "exceptions which prove the rule."

In the light of the foregoing conception of the part played by lesions in the scheme of cancer causation, many things become clear which heretofore were obscure. We can see, for instance, that cancer is not determined by "heredity" or other tendencies inherent to the individual, but that, other things being equal, it prevails among the members of any community in direct proportion to the degree in which they are liable to lesions, and that a similar correspondence may be observed with respect to its incidence upon the organs and parts of the body. Hitherto, it has been taught that, in some unknown manner, cancer was determined by age, habit, custom, occupation and other influences of a similar kind, but having regard to the fact that, by reason of a tendency to degenerate, and a lack of reparative power, the tissues of persons beyond middle age are unable to withstand exposure to injurious influences with the same success as formerly, and tend in consequence to become defective in various ways, and also that certain customs, habits, occupations, etc., are calculated to cause lesions, and that though some of these lesions become cancerous, *a greater number never do so*, it seems to be more in accordance with the facts and with reason to believe that *age, habit, occupation, etc., determine the appearance not of cancer, but of lesions.*

From the foregoing it is evident that fertilizing agents, living tissue-cells, and lesions are essential factors in the problem of cancer, but having regard to the fact that fertilizing agents are derived from certain organisms, namely, protozoa, which exist in water, and that they are conveyed to the body only in water, it is clear that the rôle of water in the causation of cancer is as necessary as fertilizing agents, tissue-cells, or lesions, and that, therefore, water must rank with them as an essential factor in the problem. These four factors are the key to the whole problem of cancer, and no real insight into the mysteries of the subject is possible without their aid. Two of them, namely, fertilizing agents and living tissue-cells, are of theoretical importance only, while the remaining two—lesions and water—are of value, and, in fact, necessary for the solution of all the

practical problems of cancer causation and prevention. If, in accordance with what has already been said, we understand the term "lesion" to mean a breach or defect in the protective surfaces of the body exposing living tissue-cells, and the term "water" to denote unsterilized water, that is to say, water containing living organisms and the fertilizing elements thereof, it is obvious that the factors, lesions and water, may be regarded as including the other two factors; or, in other words, lesions and water, for practical purposes, may be considered as representing the action of all the factors. For convenience, the terms "lesions" and "water" will, unless it is specified otherwise, be used in this sense hereinafter.

If we consider that there can be no effect without its cause, and therefore no cancer without a causative or fertilizing agent, we must expect to find that wherever cancer prevails its causative agent is present also. Consequently, it is a matter of considerable significance that cancerous disease is not confined to the human species, but that it attacks all vertebrate animals, including fishes, throughout the world. Since, then, the causative agent of cancer is universally present, and all vertebrates are exposed to it in common, it becomes virtually certain that it must exist in water; otherwise, it would be impossible to explain or even conceive how the disease could appear in fishes. It does not follow from this, however, that water is the only universal medium to which fishes and other vertebrates are exposed in common, but, inasmuch as there is nothing to suggest that other media are concerned in the causation of cancer, it is not necessary to consider them.

With a few unimportant exceptions, protozoal organisms are found in all water-supplies, but their density, or number in a given quantity of water varies in accordance with certain conditions, some of which are favorable, and others unfavorable to their development, but, notwithstanding a suitable temperature and the presence of adequate supplies of food materials, oxygen, and an environment entirely favorable in all other respects, they can never attain their highest development except under two conditions, namely, exposure to sunlight and quiescence. Hence, in waters protected from sunlight, protozoal organisms, if present at all, are found only in small numbers, while in waters exposed to sunlight, their numbers will vary according to the degree of movement to which they are subjected,—stagnation implying maximum numbers; moderate movement, medium numbers; and rapid movement, minimum numbers. We are thus enabled to distinguish three classes of surface water which, according to the numbers of protozoal organisms present therein, are as follows:

1. *Maximum numbers. Stagnant waters exposed to sunlight.* To this class belong the waters of ponds, small or medium-sized lakes, reservoirs, and, in some cases, the still waters along the banks of sluggish rivers.

2. *Medium numbers. Waters in constant and gentle movement and exposed to sunlight.* This includes practically all rivers and streams in low-lying countries, and the waters of great lakes and inland seas, the surface of which is kept in motion by wind-action.

3. *Minimum numbers. Waters in constant and rapid movement and exposed to sunlight.* This comprises all rivers and streams in mountainous regions.

Inasmuch, therefore, as the character of water is determined by the physical features of a district, and since all communities, excepting urban populations, are dependent upon natural sources for their water supplies, it follows that the incidence of those diseases which are due to living organisms in water must correspond, not only with the character of the water, but also with the physical features of the district. As a matter of fact, the association between the physical features of a district, the character of its water-supplies, and the incidence of certain diseases is so close as to constitute a proof of a causative relation between them. If, then, we accept this as being true in the case of some diseases, as, for example, malaria or yellow fever, we cannot reasonably refuse to avail ourselves of the same kind of proof in the case of other diseases having the same relationship to water and the physical characteristics of a district. If, therefore, it can be shown that the distribution of cancer, not only in countries, states, and localities, but also throughout the world corresponds with the development of protozoal organisms in water, that every organ or part of the body is liable to the disease in proportion to the degree in which it is exposed to each class of water, that the disease tends to increase with increased exposure of populations to water drawn from stagnant sources, that occupations,

habits, customs, and other circumstances predispose to the disease according to the degree in which they favor the production of lesions and exposure of the same to water, and that a constant relation exists between certain water-borne diseases, more especially typhoid fever, and cancer, we shall then be in a position with respect to cancer very similar to, and certainly not less advantageous than that which we occupied towards malaria and yellow fever before the possibility of their control became an established fact.

(To be continued.)

SPINAL CURVES IN GROWING CHILDREN.

By E. H. Bradford, M.D., Boston.

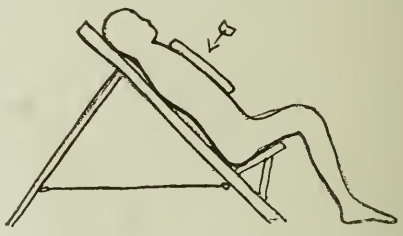
If a growing girl is brought to a doctor's office for advice as to the treatment of a slightly projecting shoulder or hip, the surgeon will often find it difficult to form a definite opinion as to the probability of benefit to be expected to follow treatment or the danger of increasing deformity if thorough treatment is not followed.

The treatment commonly employed in the severe forms of the deformity is of doubtful advisability in slight cases, while simple postural or gymnastic measures cannot be relied upon to correct twisted bone. To enable the physician to form his opinion more definite information is wanted.

In a growing child with round shoulders, the spine is either stiffened abnormally in some parts of the column, or the flexibility is normal. The same is true in side curves. These differing conditions need different treatment, and if commencing scoliotic rotation is present, more rigorous measures are needed.

The normal flexibility in spinal column in the young varies considerably from that found in adults. This can be seen on examining a number of records of spinal flexibility. These can be made with sufficient accuracy by marking on a plate of transparent glass against which the patient's back rests when the patient is standing straight, and also when leaning to both sides. A skin pencil mark on the spinous processes is seen through the glass when this is marked on the glass, and a record of the side flexibility of the column is made. This method will be found useful in helping to determine

Self-correcting Stretching Exercise for Stiffened Curves.



Reclining Board with Front Pressing Board for Twisted Curves.

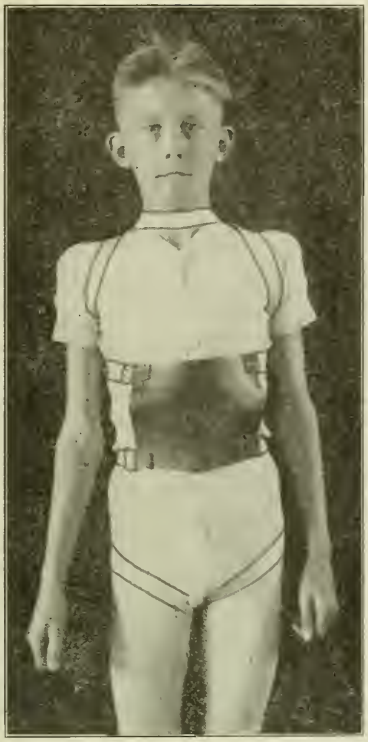
commencing stiffening spinal ligaments, localized irregularly shaped cartilage or bone. In recording anterior curves, another method is needed, as the projecting scapular masks the real spinal lines of the patient as seen from the side. A pencil bearing tracer with a curved, upright rod to follow the spine without touching the scapular can be used for a side section of the trunk, unmasked by the projection of the scapula.

Having information on these facts, the surgeon is able to determine whether it is necessary to attempt to stretch shortened tissue, or if muscular or postural treatment will be sufficient.

If a spine is flexible in its curves, these will disappear when the patient is recumbent. In an erect position, flexible spines sag under their load if the muscles are weak or easily tired. It is therefore desirable to note the strength of the spinal muscles.

The principles of treatment are that easily tired backs should be properly rested, weak muscles backs should be strengthened, and stiffened parts of the column should be made as flexible as possible.

Anyone familiar with inspection of the school children of our communities is aware of



Round Shoulder Check Rein Straps.

the faulty figures too frequently seen. This is by no means more noticeable among the poor, in fact, it has appeared in some localities, that the richer class is poorer in respect to the vigor of the carriage, even in childhood.

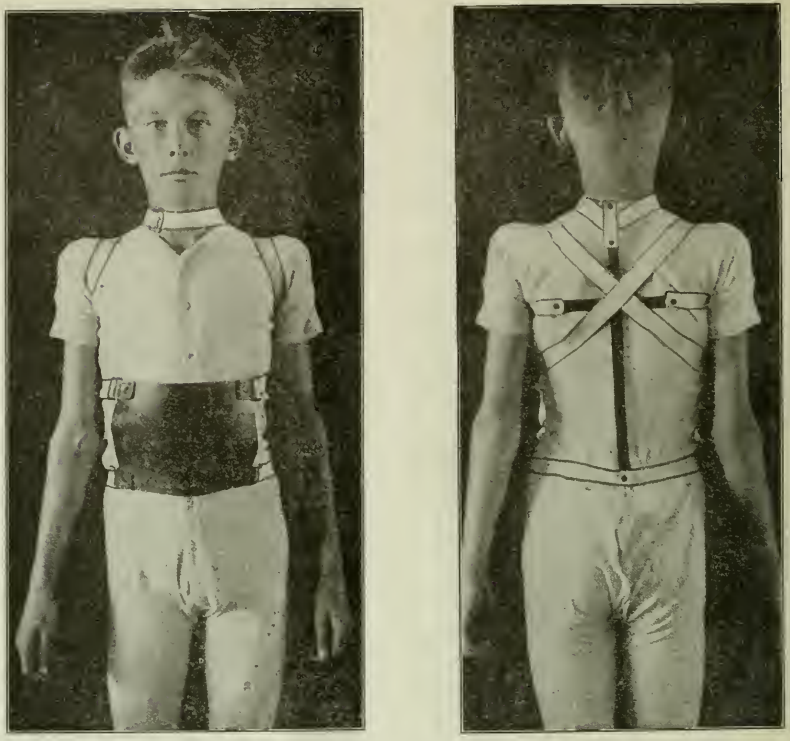
Curved and twisted backs, flat chests, distorted trunks, all are causes of enfeeblement, even if they are not symptoms of disease. A careful study of measures both by prevention and remedy is important.

The amount of medical literature upon this subject published in the last thirty years, shows not only the importance of the subject, but also the needed amount to be learned, and yet the practitioner who is confronted with the simplest form of the problem, namely, the treatment of a child of twelve presenting to a slight degree the deformity of a projecting shoulder or a prominent hip, finds little to guide him in his opinion.

The pen of a Rabelis would be needed to describe the various methods, not only authorized in textbooks, but actually employed formerly in European orthopedic institutes, where the rights of childhood are either less regarded or more urgently claimed.

Few, if any, American physicians would condemn a healthy, growing girl to a year's exile of half bed life and gymnastics, or to six months of a spinal couch in a special institution, or to the wearing for years of clumsy, heavy corsets, merely because the bared back showed to apprehensive parents, an abnormality in contour, with the only promised benefit from such rigorous treatment, that the curvature would be prevented from increasing.

Spinal curvatures, in most instances, are not to be regarded as a definite disease to be treated medically or symptomatically, but as a fault in growth. Treatment is not simply the correction of the curves so much as the guidance of



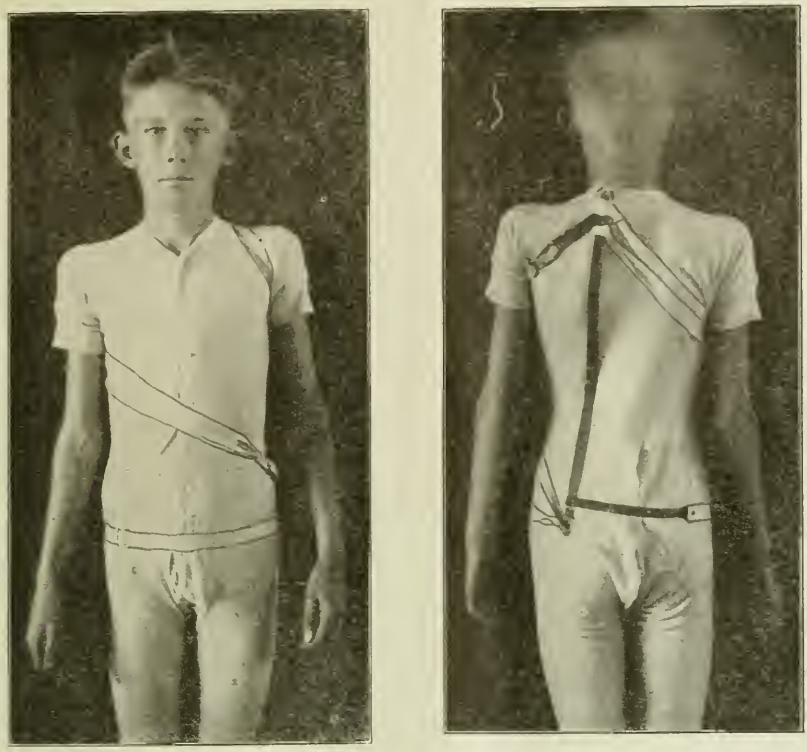
ROUND SHOULDER BRACE.

the growth to a normal standard of carriage or trunk shape.

The chief causes determining spinal curves may be understood without difficulty: The spine of the new-born is flexible, bending in several directions, forwards, backwards, sideways, and capable of twisting on itself to a limited degree. In the upright position, it curves and cannot be held erect until the muscles gain their normal strength. With strengthened muscles, the erect attitude is assumed with a balanced spine with slight normal, forward and backward curves, adequate flexibility and proper rigidity for erect locomotion and adjustment to changes of position. Abnormal curves come if there is muscular weakness, causing undue sagging of the spine, or if curved attitudes are too often or too long assumed by an inadequately resistant spinal column. What these curves will be depends upon the resistance of the column, the extent of the load carried and its direction. Abnormal curves vary according to definite classifiable types, namely forward and backward curves, side curves, single and double curves with twists, curves with stiffening tissues and changes in the shape of the bone structures. (Congenital defects, structural anomalies are infrequent and are not considered here.)

The causes of differing abnormal curves are many and not easily recognized: their action is gradual and may be checked by increased structural resistance of the vertebral bodies. In the progressing cases, the abnormal curves increase until they become more or less fixed with structural changes of ligaments, fascia, muscle, cartilage and bone. The rotation of the vertebrae as the abnormally curved column is subjected to downward pressure beyond its resistance, drags with it the connected ribs and characteristic deformities result.

While in the earlier stages the curves and



Lateral Curvature Brace and Spinal Straps.

twists are more or less correctible, they may become rigid and unyielding with marked structural changes from abnormal strains and pressure. Groupings can be made of importance to the specialist, according to the shape of the curves, namely, single, double, dorsal, lumbar, etc. For the general practitioner, the management of spinal curvature cases, a practical grouping will be of convenience:

1. Habit curves in healthy backs.
2. Weak backs, with weak muscles or back tissues.
3. Twisted backs, with varying resistance to connecting pressure.

The physician will be aided in forming his opinion as to the proper management of cases by informing himself as to the child's rate of growth, ratio of weight to height (compared with normal standards), the child's general condition, habits of activity, and commonly worn clothing. He should bear in mind, that while certain variations in the forward and back curves of the spinal line may fall within the normal limit, marked hollow backs, flattened chests, projecting shoulder blades are not normal, and that a lack of symmetry in the slope of the shoulders, the side lines of the trunk and hip, as seen from behind, is not normal, nor is a difference in the distance of the tips of either scapulae from the spinal line (that is, the line of the spinous processes) normal. The spinal line seen from behind is straight in the erect standing position, and bends equally to either side in side bending.

Habit curves should not occur in healthy children with a normal environment. If observed in children of good physical development, faulty attitudes in sitting, ill-suited chairs commonly used, indolent habits, or constricting clothing, are all to be considered as possible contributing causes. The best treatment for this condition is a daily drill of simple setting-up

exercises, with removal of any faulty conditions of seating or clothing, specific directions for active play is essential. There can be no question that the proper seating of children is a difficult problem. The fault lies, not so much with the seating at school, although that is often faulty, but in the home chairs, which are made for adults and do not fit young children, who drop into faulty positions unless their activity keeps them from any habitual position. The fact that the greater part of the waking day in a child's life is spent seated with the back muscles but little exercised, the back partly supported and partly stretched, the child leaning against an ill-fitted chair-back, cannot be ignored. Two to three hours active exercise are, at most, as much as is passed by the average school girl. This suggests that the prevalence of back curves may be due to chairs, and that curvatures of the spine are in part a chair deformity.

In support of this supposition, may be mentioned the apparent fact that primitive and chairless people seem to be more erect in their carriage than chair-using people. If this is the case, the greater domestic use of low stools for growing children would seem advisable.

Whether backs are weak from a lack of bone tissue resistance, or lack of firmness of ligament, or more from a lack of muscle tone, the condition of weak backs in children needs treatment. The condition can be recognized from evidences of more than usual fatigue and by sagging curves of the spinal line. The judicious treatment of the condition is adjustment of hours of active play and enforced rest, with, where possible, special exercises and suitable means of back support in seats used for any length of time in the daily life of the child. In increasing curves of this character, mechanical supports may at times be needed to check spinal sagging.

Where there is a twist as well as a curvature, the condition demands careful treatment, not only for the correction of the curves, but also for the rectification of the rotated ribs. This requires mechanical correction, either by intermittent or constantly applied pressure, and needs specialized treatment.

In treating more resistant curves, care must be taken that the proper treatment is applied definitely to the resistant and not the flexible part of the column. In infantile spines, there are no resistant curves. Side flexibility is found in all directions to a much greater degree than is seen in adolescent or older spines. In adult vertebral columns, there is more bone and less cartilage and consequently less side flexibility without rotation, but in infantile columns pronounced twists occur if the upper part is crowded down, unless the spine is bent strongly backwards. Twisting of the vertebrae follows pressure on the corresponding ribs. Stretching abnormally resisting curves, with shortened tissues, can be effected if correcting pressure or pull is applied directly on the convexity of the curve, with counter pressure above and below the curve.

The problem in correcting resistant curves is a mechanical one and requires some care to secure proper precision. Otherwise, little will be accomplished, or the curves may be increased. Muscular gymnastics alone cannot be adequately corrective in abnormal resistant curves.

In treating curved spines, the surgeon should be able to furnish measures which can be readily applied and can effectively counteract stiffened fascia and ligaments.

In attempting to stretch spinal curves, the load should be removed from the spine. This is done most conveniently to the patient when in the semi-recumbent position, and properly adjusted straps for head and side pull, attached to pulling weights, can be arranged to give correcting pressure for any desired time and to any extent.

A board sloped to any desired angle, furnished with a seat to prevent the patient from sliding down on it, enables a tired back patient to rest and offer a proper position for correctly stretching. If upon the trunk of a patient lying on the reclining board, a short board is placed, and the sides are strapped to the reclining board, any amount of pressure can be made on the twisted and projecting ribs and correction made on the spinal rotation. This intermittent correcting pressure is suitable for slight degrees of twists in young cases, to whom the constant pressure of plaster jackets is inapplicable when the muscle weakening effect of a heavy corset cannot be disregarded. Daily rest of the column can be furnished by the prescribed use of the reclining board.

Elaborate gymnastics and postural movements requiring supervision are not well suited

for home treatment which necessarily forms an important feature in the treatment of so chronic an affection as spinal curvature.

Besides the usually prescribed dumb bell and weight-pulling exercises, patients with spinal curves should be directed to carry daily, for a stated time, upon the head, a basket containing specified weight. This gives both poise and strength to the spinal column and is an exercise suited to home direction.

Even after spinal muscles have been strengthened and abnormal stiffness of spinal curves have been made more flexible, the patient often needs to avoid habitual faulty positions. This may be done by conscious efforts on the part of the patient or may require mechanical restraint. Cumbersome, heavy and disfiguring appliances are to be avoided. The appliances are either restraints or are to exert some correcting pressure.

A simple unnoticed check rein can be used to restrain a round-shoulder attitude. Around each shoulder a loop of strong webbing is passed,—crossed in the back and buckled to a square piece of leather or cloth placed on the abdomen pressed in, if the straps are buckled passed around the upper parts of the thighs and also crossed in the back and buckled to the lower corners of the cloth on the abdomen. The shoulder blades can be drawn back and the abdomen pressed in if the straps are buckled tightly. The running forward of the head is checked if a webbing strap is passed in front of the neck and fastened behind to the two shoulder straps.

If a stiffer correction is needed it can be provided in the following way: A light spring steel bar is cut long enough to reach from the neck to the buttock, and to this is fastened a shorter cross-piece at the level of the axillary line; webbing straps are connected with the ends of the steel bars and passed around the shoulders, hips and neck and buckled to the abdominal cloth piece, which secures an erect attitude as long as this brace is worn, which can be done under the clothing.

In side curves, a similar steel spring strip can be used, but the cross-piece should extend on the side of the back only and be attached to a strip of webbing, which, passing around the lower shoulder, is connected to the top of the steel bar. At the lower end of the steel, another steel strip is fastened, extending from the middle of the back to the rim of the ilium. If to these, broad webbing bands are attached and passed around the hip on one side, and the prominent shoulder on the other, and tightened in front, a satisfactory correcting pressure is secured for cases of slight side curves.

If constant correcting pressure is needed, it can be furnished through a bivalve celluloid corset cut out so as to avoid pressing upon the hollows. Such a corset needs careful adjustment, and should be so arranged as to give correcting pressure above the axilla upon the neck. A convenient and lighter appliance can be effectively adjusted by combining the light upright already mentioned, with celluloid half shells.

To estimate precisely the value of different methods of treatment in a slowly changing affection like spinal curvature, cannot be estimated by statistics, as conditions vary greatly in individual cases.

Observations upon the condition of a number of cases, some years after the cessation of a carefully conducted treatment, enables the observer to form conclusions of some value to the serviceableness of different methods. Certain facts and conclusions can be noted from a large number of cases under observation for several years. Cases of flexible curves without structural changes in reasonable good health, with either anterior or side curves, can be expected to be restored to normal contour under proper guidance. This result can also be expected where some abnormal stiffness is present, though some special pains may be required to overcome faulty stiffness. Evidence to support this statement was furnished by a number of cases watched from childhood to adult life. Patients with rotation, projecting shoulders or hips, need thorough measures of improvement is to be expected even in young children. It is not difficult, however, to prevent an increase of curves in healthy adolescents, if the case is carefully observed for a sufficiently long period at suitable intervals.

Healthy girls with marked curves and twists may grow to womanhood and maternity. Low lumbar curves in rapidly growing adolescents need especial care, for the reason that bad lumbar curves in heavy adults are to be prevented, as in after life they cause much inconvenience.

Even in distressing resistant adult curves, as was shown in a few instances, relief from painful symptoms was afforded by persistent correcting pressure and muscular exercises.

In the foregoing statements it is claimed that the surgeon can avail himself of a number of serviceable measures which enable him to meet the surgical indications of a slowly changing distortion, checking its progress and, in some cases, correcting deformity.

A STUDY OF LEPROSY IN THE HOLY LAND.

By Izak Alcazár, M.D., Boston.

I came to Palestine in 1918 in the capacity of an eye, ear, nose and throat specialist, to bring relief to the civil population and the refugees. In connection with my clinic and hospital duties, I was assigned the care of a few orphanages, schools and the leprous hospital in Jerusalem. Through my visits as consultant to this institution, I became deeply interested in these unfortunate beings. Their condition was pitiable. They seemed to have enough affliction with their cutaneous malady without the additional misery of trachoma and its numerous complications. It is not the purpose of this paper to describe the ocular complications which I was called upon to treat, but to summarize a few of the observations which I made of this disease in which I have become exceedingly interested during the past three years.

Leprosy is an old disease in Palestine, at least, as old as the Bible itself. Egyptian, Greek, Roman and Arabic writers have been consulted. It would take us beyond the scope of this paper were we to make frequent references to the subject matter consulted. These have been purposely omitted in order to make the paper more readable.

Whatever may be the relation between the Scriptural teaching and the physical, or any other branch of natural science, the reader of the Bible cannot fail to be struck with the analogy between theology and medicine which is manifest both in the Old and the New Testaments. This is particularly applicable to the disease under consideration. It is indeed remarkable how little is said of the treatment of leprosy and its prevention, and yet how abundant are the sanitary laws laid down in the most specific and detailed form in the Mosaic sanitary code which may be said to constitute the pivotal principles of modern management of leprous asylums, *viz.*, segregation.

It would take us into the theological discussions were we to discriminate between the different means by which, or purposes for which, leprosy was inflicted in Bible times. It is recorded that in some cases it was inflicted as signs, as in the case of the leprosy of Moses, which was of temporary duration; in others as direct punishment for sin. It were better to leave this matter for the theologian to settle.

In Egypt the priests acted as physicians, and appear to have had assigned to them special duties with regards to certain diseases. For example, some had the diseases of the eye, and some of the ear, others of the skin, etc. That Moses who "was learned in all the wisdom of the Egyptians" (Acts vii, 22), introduced sanitary laws for the guidance of the Israelitish priests to deal with cases of leprosy, needs no argument. There is, however, this difference: The Egyptian priests had their canons of practice laid down in their sacred books which they were bound to obey, and which consisted largely of superstitious and ceremonial observances. The chief priest-physicians, the magi, the wise men and magicians of whom Moses speaks, claimed superhuman power in the control of the disease. It is also deserving of notice that neither in the Levitical laws, nor elsewhere in the Old Testament, is there any mixing up of the cures and curative means with the necromantic or superstitious observances which form so prominent a feature in the medical practice of all other peoples in primitive times. This is particularly clear in the matter of leprosy, "for I am the Lord that healeth thee" (Exodus xv, 26), "who forgiveth all thine iniquities; who healeth all thy diseases" (Psalms ciii, 3), "who bindeth up the breach of his people, and healeth the stroke of their wound" (Isaiah xxx, 26).

NOMENCLATURE OF THE DISEASE.

Since the application of the term *leprosy* to designate the disease described in Lev. xiii and xiv, the greatest confusion has prevailed in the use of the word, and the utmost difference of opinion as to what it implies. This appears to have arisen mainly from the same Latin word—*leura*, having been used in at least two different senses. Originally, *lepra* was used to denote simply a disease of the skin and was synonymous with the Greek λέπρα, the radical meaning of which is rough or scaly. There is no evidence in the medical literature that the Greek word quoted above was ever used

in the First Century to denote anything else but a husky or a sealy disease (Bible Educator, Vol. iv, p. 76 et seq., 1878). This no doubt was a variety of psoriasis, an ancient and very common cutaneous disease in southern Europe and in the Levant. It was not until the Middle Ages when *elephantiasis Graecrum* became known as true leprosy.

Leper and leprosy are always denoted in the Old Testament by words derived from one root (*tsara*). The word is used alike for the leprosy of Moses (Ex. iv, 8), and of Miriam (Num. xii, 10).

FEW OF THE COMMON MANIFESTATIONS OF LEPROSY

I regret that I did not have the opportunity to study leprosy microscopically. The leper hospital in Jerusalem had an admirable collection of pathological and bacteriological specimens for study. But the ruthless Turk destroyed everything of scientific value to prevent it from falling into the hands of the invading British Army. My opportunities were confined only to the physical masifestations of the disease *in vivo*.

Leprosy is one of the most formidable and hopeless of all known maladies. The nearest analogy to it is syphilis. Its greatness and gravity must have given rise to the term *elephantiasis*. The character of the disease—the thickened, dense skin which it assumes and diminished sensitiveness to impressions—caused the old authors to compare the skin of a leper with that of an elephant.

The history of onset, as I have been able to elicit it from most of the patients with whom I came in contact in the leprous hospital in Jerusalem, seems to be that only in a few cases the disease supervenes suddenly. The onset is usually ill defined and its progress slow and insidious. The first chief features are numbness of the skin, and the manifestations of punctate spots or blotches, irregular in form, and varying in extent, chiefly upon the forehead and upon the limbs, with a general diffused redness upon the face and neck. Then the skin becomes stained, and in the course of a few months or years assumes a coppery or coffee color. Not infrequently the areas assume a hazy whiteness. The eyebrows, nose and ears are the parts of the face frequently affected. The majority of these patients have trachoma as well. It was on this account that I was called upon to administer relief to these miserable human beings. The involved surfaces are moistened with a greasy exudate which later on become dry and scaly. In the early stages anesthesia exists in all the affected spots. When the injury is very deep, involving branches of nerve trunks, the pain is very severe. Few of these patients have any fingers left. They waste away and fall off, bit by bit, with the slow progress of the disease, leaving only the stumps. The mucous membrane of the mouth shows irregular scars, much like those we note in syphilis, only larger and more numerous. Nodules and tuberosities are also seen as elsewhere upon the skin. It is not at all uncommon to see these patients without an arm or a limb, but they usually die after the loss of the member. Out of the present twenty-six patients in the hospital, one had an arm off, two, a foot; two, with one eye, and three were completely blind. No doubt trachoma had also its blinding effect superimposed by the leprosy. I have found only two with ears involved. Most of them have a husky voice. The septum of the nose succumbs, and by contrast the tip of the nose appears much enlarged. They are subject to dreadful nightmares. They awake very suddenly, crying in shrieks and almost maniacal. Life may be protracted from one to ten years. Those with longevity of life complain of internal burning and neuralgic pains productive of great suffering.

Lepers and leprosy existed in Palestine long before the Christian era. That they were in large numbers one need only peruse the pages of the four Gospels. The Crusades, the Saracens, and modern travelers record the horrifying impressions of these leper beggars whom they encountered by the gates of the city and upon the highways. I saw them in increasingly large numbers during my brief visits in the Holy Land, in 1907 and in 1911. When a tourist meditatingly sauntered through the streets of Jerusalem with visions of the past glorious history of the "Holy City," whether they were secular or religious, he was startled out of his reverie by the sudden apparition of a crowd of beggars, "sans eyes, sans ears, sans hair, sans everything." They held up their handless arms, gurgling through their throats sentences of appeal for pity, as they lay in wait for the few coppers that *must* be thrown at them. If these were not immediately forthcoming they arose and followed the traveler, and almost touched him, till they received alms. Pre-

vious to the British occupation of Jerusalem, these crowds of lepers had stationed themselves near the gates of the city, upon cross-roads, and upon the highways, wherever the tourist and the pilgrim was wont to pass on his visits to the sacred spots and shrines. If the traveler failed to give heed to their pleadings for pittance, they threatened to approach closer and even to touch the passenger until they got their objective—which they invariably did, for no one was desirous of being touched by a howling group of lepers for the sake of saving a few coppers.

During the Turkish régimé these mutilated and disfigured human beings were allowed full freedom anywhere outside the walls of the old city of Jerusalem. For a number of years they had lived in a cave on the slopes of the Mount of Olives, near the village of Siloam. Several hundred of them, thither would herd themselves at night like hunted animals. About an hour before sunset, these groups of lepers who had segregated themselves in the morning to the various points of vantage of attack upon the tourists were now seen wending their way towards the village of Siloam. On their way "home," they would stop near the vegetable and fruit gardens, without the gates, to purchase food with the alms which they had acquired during the day. They could only make their purchases from what was obtainable without the city walls. After the arrival of the various companies they assembled together all their purchases. This was divided among them by their chief. The same was done with the money that was left from the total income of the day. They married among themselves, and all matters of dispute were settled by their chosen chief, whose word was law and final. In short, they were a clan who lived a sort of communal life very much like the gypsies. Thus it has been from time imme-

FIG. 1.—A group of Jerusalem lepers seated at the entrance of the cave (their home) situated on the slopes of the Mount of Olives, near the village of Siloam. Elephantiasis is well marked on the patient at the extreme left. Every patient in this group is a Moslem. Only two have survived the ravages of war.

FIG. 2.—Surviving lepers in Palestine. Two of these miserable beings have lost a limb as a result of panophthalmitis. The author enucleated the right eye of the patient in 1919. He is second at the left of the first row.

FIG. 3.—The German Leper Hospital situated at the outskirts of the city of Jerusalem. (See text.)

FIG. 4.—This leprous woman came to my clinic at Jaffa, Palestine, in August, 1920. She had lost her left eye many years ago. The right eye showed ulcerative keratitis, panus, entropion and trichiasis. Much was done for this desperate case. Her appreciation of the kindness shown her will remain with me as one of the greatest rewards of my labors among the victims of this dreadful affliction.

morial, and would have continued so but for the brighter dawn of day since the British occupation of the Holy Land. Fortunately for the world at large, and no less for the poor sufferers themselves, many of them have been carried away, what from hunger and what from intercurrent diseases and starvation, during the four years of war in Palestine.

Human sympathy has always gone out towards the victims of this incurable disease. Agencies have now and then been ready to extend help and relief, some from purely philanthropic motives, others actuated also by religious principles. This noble example is common knowledge to missionary agencies in various parts of the world, for no other disease centers more the attention of Old and New Testament readers than leprosy. The Roman Catholic Church leads in this benevolent labor of sacrifice throughout its church history. The memoirs of the early Fathers contain lengthy passages of the labors of priests among the lepers. In one account, the picture is so touching that it records the impossibility of administering the Holy Sacrament because the disease had extended so deeply that the patient could not swallow the Rite, ("Manipius Curatorum," Bremen, 1577).

These lepers are very superstitious, and have great faith in necromancy and witchcraft. They prefer the employment of such means rather than to resort to modern methods of alleviating their sufferings. They have great faith in the cure of waters from fountains of certain localities in Palestine, or in drinking the blood of dogs mixed with dejecta of infants under two years of age, but none of the patients I interviewed who had tried the remedy could quote an instance which, in their experience or that of their contemporaries, had proved efficacious, but they continued the practice on the strength of tradition.

In the year 1865, the Leper Hospital in Jerusalem was founded by Frau Baronien von Kreffenbrink Ascheraden aus Pommern. The institution had a capacity of sixty beds, and was supported by funds raised in Germany, England, and to some extent in the United States. It was put in charge of the Moravian Brethren. During the war it continued its benevolent work through assistance from England and America. It has today twenty-seven patients. The asylum was founded for the purpose of treating the lepers of Palestine and inducing them to enter the hospital as inmates, hoping in time thus to separate them from their families with an aim to diminishing the spread of the disease. This purpose was met with many difficulties, for married persons would not submit to segregation; only those so miserably helpless yielded to this wise provision.

I have been unable to ascertain from old residents of Palestine, or from the surviving records of the hospital, if there were any Jews among the afflicted. Practically all of them are Moslem peasants. That there were many lepers among the Jews in Old and New Testament times, one only needs to read Leviticus and the Gospels for conviction. Josephus and the Talmud state that "they were excluded from the Temple and the Synagogue." They had, however, separate seats assigned to them, and were required to enter first and leave last, but they were only those whom the priests considered of the "clean type," that is to say, those who had the disease in its earliest manifestation.

Whatever view may be taken of this dreadfully disfiguring disease, two things are certain: first, that they are subjects of unspeakable suffering and misery; and second, that the only hope presented to Palestinians for preventing its spread and exterminating the evil is by segregation, resulting in great benefit to the lepers themselves and to the community in which they live.

Palestine has entered upon a new era. The British rulers of the land are now seeing to it that this ancient and repulsive disease is entirely exterminated from Palestine, and that as Israel is now promised a return to its ancient home land, may they, as well as the pilgrims of other religious sects find leprosy conspicuous by its absence, and thus make Palestine a Holy Land indeed to Jew and Gentile alike.

LYMPHATIC DRAINAGE OF ASCITIC ABDOMEN THROUGH PARAFFINED VEINS.

By Richard J. Behan, M.D., F.A.C.S., Pittsburgh, Pa.
Surgeon to St. Joseph's Hospital.

Ascites may be due to several factors. The most important of which is cirrhosis of the liver. Of this there are two types, biliary and the portal. The biliary cirrhosis is benefited in many cases by producing drainage of the bile

duct. It does not, as a rule, cause as much ascites as does the other form, due to portal obstruction.

With the portal-obstruction ascites, jaundice is absent. There have been various operative means of correcting this ascitic condition. The operations devised being: first, the development of an anastomosis, between vessels on the surface of the liver or the spleen, with vessels on the under surface on the diaphragm, or of the abdominal wall; second, the development of an anastomosis, between the omentum and the abdominal wall; third, direct drainage of the ascitic fluid through a tunnel, through the abdominal muscles into the substaneous tissue spaces of the abdominal wall; fourth, direct drainage of the portal vein into the inferior vena cava or of the ascitic fluid through the implanted upper segment of the internal saphenous vein into the circulatory (veinous) system; sixth, lymphatic drainage thorugh the method of Handley, by which ligatures are passed out from the abdominal cavity and inserted in various directions in the substaneous tissues.

All of the above methods are successful in a proportion of the cases. The first method, that is, the one in which the peritoneum is attached to the anterior abdominal wall, or else is embedded underneath the peritoneum is successful in about 37% of the cases. This is a fair recovery, when we remember that ascites is frequently the last and most fatal complication in cirrhosis of the liver.

In regard to the sixth method, that is, the method of lymphatic drainage, I have undertaken, in two cases, a modification of this method, and while the time has not been long enough to prove its absolute effectiveness, I have considered it wise, nevertheless, to report it at this time, with the hope that others may be induced to try it.

In the two cases in which modified lymphatic drainage was used, it proved successful, both in reducing the quantity of abdominal fluid and in preventing its recurrence. The first patient was a Mrs. E., who entered St. Joseph's Hospital, Pittsburgh, Pa., on August 14, 1919.

The chief complaint of the patient was swelling of the abdomen and feet. She had severe pain over the entire abdomen. The present illness began in May of 1919, when she noticed that the feet were swollen. This swelling gradually increased until the abdomen was involved. She started to vomit in August.

The condition has been increasing in severity, until at the time of the examination at her entrance to the hospital on August 14, the patient was found to be very short of breath, able hardly to speak and extremely weak. The examination by Dr. R. J. Behan showed the following: a patient of 41 years of age, weight 134 pounds. In January of 1919, she weighed 154 pounds. The skin is moist, the lips are chapped. The breath is very foul. The eyes are negative. The mouth is negative. The neck is negative. Thyroid is not enlarged, small glands are palpable on the left side in the supraclavicular region. The chest shows dullness on the left side at the seventh rib in the mammary line, and the fifth rib in the mammary line on the right side. On percussion on the right side in the axillary region, there is dullness; and distant breath sounds are heard. The vocal fremitus is also reduced. On aspirating, fluid is found. The heart is O. K. The abdomen is very much distended, smooth and glossy, and shows many lines and albicantes. It is slightly tender to pressure. There is dullness on either flank. The liver extends below the costal margin. It is five fingers in breadth. It extends from the seventh rib in the mammary line. Dullness in the flank changes on change of position of the patient, becoming less marked when the patient lies on the opposite side to the side percussed. There is slight dulness towards the pubes, more marked on the left side. The stomach is about two fingers below the umbilicus. The inguinal glands are large, both sides. There is no tenderness in the lumbar region on either side. The line of dulness, when the patient is reclining is about two inches above the level of the anterior superior spine. The umbilicus bulges. The patient lies with the limbs drawn up. Tenderness is present over the gall-bladder. The abdominal wall is edematous and the edema is more marked on the right side. Vaginal examination is negative. The extremities are edematous. Both feet are swollen. Edema is present in the fingers.

The diagnosis at the time was that the abdominal cavity was distended by an inflammatory peritoneal fluid. The same condition was thought to be present in the chest, especially so as the patient had a slight fever and a rapid pulse. On August 16, the chest was aspirated. A bloody fluid, which quickly coagulated was obtained. A needle was introduced in several directions and came into contact with the dia-

phragm at the time of aspiration. A considerable quantity of reddish fluid was removed. The report of the fluid from the laboratory was that it was a transudate. There was no growth on culture.

Operation on August 18, 1919, under local anesthesia. An oblique incision, about 1½ inches above Poupart's ligament was made, down to the peritoneum, which appeared as a bluish membrane. As soon as a slit was made in the peritoneum, a reddish fluid began to pour out. This was removed with great care. Four thousand cubic centimeters of this fluid was drained away. Four strands of twisted cat-gut were inserted into the peritoneal cavity. The other end of this catgut drainage was introduced beneath the subcutaneous tissues. The incision was closed, then sutured by two lines of sutures. The skin was closed with silk worm gut. The sutures were placed close together. After the operation the abdomen was soft. All the fluid, however, was not drained out of the peritoneal cavity. It was also noticed the next day after operation, that there was marked swelling in the tissues where the drainage took place. The patient could breathe better.

On September 18, 1919, the patient's appearance was much improved, no shortness of breath, no flushing. The chest showed dulness on the left side, beginning at the third rib and extending downward. There was also tenderness present. Distant breath sounds are present on listening in this area. Dulness is present in the axillary line on the left side, but on the right there is no dulness present, when the patient lies flat in bed. The abdomen is still slightly distended. The scar of the incision is also distended. The abdomen adjacent to the scar is also distended. The veins of the abdomen are distended more on the left than on the right side.

Fluid evidently is still present, but is localized more to the left abdomen than to the right. The patient showed marked improvement, since entrance to the hospital. Not a great amount of urine is passed. The feet are not swollen.

After the patient left the hospital, she did very well for several months, until the drainage from the abdomen was obstructed. She said that she caught a cold and then the abdomen began to increase in size. This continued until the reentrance of the patient to the hospital. When the patient entered the hospital, February 10, 1920, the abdomen measured forty-four inches at the umbilicus.

Because of the evident failure of our operation, it was now determined to do a further drainage operation. A section of the internal saphaneous (about 12 inches) was removed (2-20-20). This was immediately threaded into a glass rod of suitable size and sent to the laboratory, where it went through the stages of preparation, which pathological specimens are subjected to in order that they may be sectioned. It was imbedded in paraffin. During this time the patient was kept in bed. The amount of fluid in the peritoneal cavity gradually increased and finally it was necessary to do a paracentesis. When the veins were embedded in paraffin, the patient was prepared for operation.

On April 9, 1920, under nitrous oxide-oxygen anesthesia, an incision (Israel) was made over the kidney area on the left, the same as for a nephropexy. The fatty capsule of the kidney was pushed backward and an opening was made into the peritoneal cavity below the level of the lower pole of the left kidney. The paraffined vein was now placed in boiling water and again thoroughly sterilized. While it was still hot, the glass rod was removed. This left a rigid tube composed of a vein permeated with paraffin. Three sections were now made and the ends of each cut transversely, so that two flaps were made at the end of each section. The sections were three to six inches long. One section was then inserted into the upper portion of the peritoneal incision and the edges flapped back and sutured to the peritoneum, so that the end of the tube led directly into the peritoneal cavity. The other end of the vein was then inserted into the fatty perirenal tissue near to the lower pole of the kidney, care being taken not to actually attach it to the fascia, which was intimately connected with the kidney itself. The second tube was then fastened in the peritoneal cavity, the same as the first. It was then pushed down between the peritoneum and the fascia covering the pelvis. It was inserted in the loose tissue, towards the external iliac artery, over the pelvic brim. Several small nicks were made in it so that fluid could leak through. The same had been done with the other tube.

One extremity of the third tube was inserted into the peritoneal cavity and the other end was carried through the abdominal muscles and then through the subcutaneous fascia, almost to

Poupart's ligament. Before the incision was closed, it was noticed that all the tubes were patulous, so that fluid was being discharged from all three into the tissues.

The tissues were now approximated with catgut and the skin with silkworm gut. The peritoneum was also approximated, so that herniation could not take place. This patient did remarkably well after this operation. There was considerable swelling in the left lumbar region for some weeks. There also developed a marked vulvar oedema and oedema of the left leg also became very marked. This oedema of the leg persisted for a long time and at the present writing, March 3, 1921, is still present to a slight degree.

At the time of operation a large quantity of fluid was removed from the abdomen, but no attempt was made to remove all of the fluid. After operation, the abdomen was forty-four inches in circumference at the umbilicus. This circumference gradually decreased, until two weeks after operation it was forty-two, then in one month it was reduced to forty inches, then in another month to thirty-six inches and on November 5, 1920, is was thirty-four inches. On March 3, 1921, the measurement was thirty-one inches.

The patient at the present time feels absolutely comfortable. She has no difficulty in breathing. She is gaining in weight. The present weight is 157 pounds. She can do her daily work, which is housework, and she feels perfectly comfortable.

The second case was that of a Mrs. B. This patient suffered from a similar condition, as the former, that is, from a hydroperitoneum, the result of a hypertrophic cirrhosis of the liver. She was put through a preliminary operation in order to obtain the internal saphenous vein, and the vein was inserted according to the technic devised for Mrs. E.

The patient showed remarkable improvement, also after operation the area over the site (kidney region of lymphatic drainage being swollen and distended and the abdomen gradually becoming less distended. However, after the abdomen had decreased ten inches in circumference, the patient had an apoplectic attack and died very suddenly. Nevertheless, she had shown a remarkable improvement, and had begun to feel fairly comfortable and was very happy.

At present, instead of using the patient's own veins, we save varicose veins removed at operation. These are threaded over a glass rod and are hardened and paraffined the same as is done in preparing pathological specimens for sectioning.

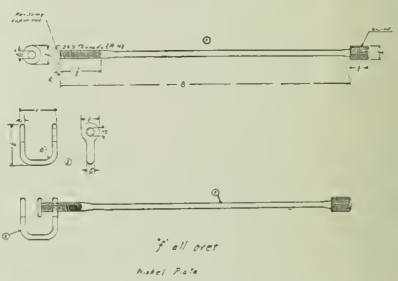
I realize that possibly the time is too brief in which to judge results of the case of Mrs. E. and since, I have had only two cases, one still alive and the other dead from a non-related condition, I have not had sufficient experience to determine the exact benefits of this method of procedure. I have published the technic with the hope that some operator with greater clinical opportunities may more definitely determine the value of this method.

New Instrument.

A NEW TONSIL HAEMOSTAT.

By Frederick J. McVey, M.D., Boston.

Since the period of enucleation of tonsils was introduced, we have been alarmed more over operative and post-operative hemorrhages. You probably all are familiar with the different kinds of haemostats, Ex. the ones with the horse-chestnut-like attachments, where one end was placed in the sinus tonsillaris, and the other end outside on the neck of the tonsil; then there is the haemostat with the tonsil-like ends which are on a spring and they fit into the tonsillar fossae; then there is the tonsil clamp which has a long handle like a pair of scissors and brings the two pillars together. My instrument is shaped like a small vice, one part goes behind the posterior pillar, and the other in front of the anterior pillar. There is a long handle attachment, and by turning the handle, the two pillars are brought together. This in-



strument can be used for producing pressure, whether the sinus tonsillaris is filled with gauze or cotton, or nothing. It may also be used for approximating the pillars when sewing is necessary. It also may be used where bleeding is from one pillar by covering the ends with gauze or cotton which has been medicated, and causing the instrument to close. This instrument can be used on both sides of the throat.

The Massachusetts Medical Society.

NOTES FROM DISTRICT SOCIETIES.

The Annual Meeting of the Bristol South District Medical Society was held in Remington Hall, corner North Main and Pine streets, Fall River, on Thursday, May 5, at 5 P.M. The State Department of Public Health presented films illustrating "The Modern Treatment of Syphilis and Gonorrhoea." The officers elected for the coming year are: President, A. I. Connell; Vice-President, H. C. Allen; Secretary-Treasurer, A. J. Abbe; Councillors: A. W. Buck, E. F. Cody (nom.), A. B. Cushman, W. A. Dolan, R. W. Jackson (alt.), A. H. Mandell, J. C. Pothier; Commissioner on Trials, D. P. O'Brien; Censors: W. A. Dolan, R. W. French, C. J. Leary, S. V. Merritt, I. N. Tilden. Dinner. At the same place, at 3.45 P.M., the Censors met the candidates, F. H. Jordan, J. S. C. Fielden, Jr., S. Morein, E. E. Hussey, H. P. Sawyer, G. H. Kershaw, J. N. Risley, S. H. Remick.

The May Meeting of the Springfield Academy of Medicine was held at 137½ State street, at 8.30 P.M., Tuesday, May 10, 1921. Dr. W. Wayne Babcock of Philadelphia, read the paper of the evening entitled, "Morbidity in Abdominal Surgery."

The Annual Meeting of the Worcester District Medical Society was held at the Tatnuck Country Club, Wednesday, May 11, 1921. Dr. George E. Emery gave the oration on "Some Problems in Tuberculosis." The following officers were elected: President, Dr. James J. Goodwin, Clinton; Vice-President, Dr. George E. Emery, Worcester; Treasurer, Dr. George O. Ward, Worcester; Secretary, Dr. A. Wilson Atwood, Worcester; Orator, Dr. A. W. Marsh, Worcester. Committee on Funds: Dr. Homer Gage, Worcester; Dr. David Harrower, Worcester; Dr. Ray W. Greene, Worcester. Censors: Dr. F. H. Washburn, Holden, Supervisor; Dr. C. A. Sparrow, Worcester; Dr. Leslie R. Bragg, Webster; Dr. Edward H. MacKay, Clinton; Dr. Edward H. Trowbridge, Worcester; Librarian, Dr. A. C. Getchell, Worcester; Nominating Committee: Dr. Gordon Berry, Chairman; Dr. Elisha Lewis, Princeton; Dr. F. L. Magune, Worcester; Dr. Timothy Foley, Worcester; Dr. Frederick W. Guild, Grafton. Councillors: Dr. F. H. Baker, Worcester; Dr. W. P. Bowers, Clinton; Dr. William J. Delahanty, Worcester; Dr. George E. Emery, Worcester; Dr. Michael F. Fallon, Worcester; Dr. Homer Gage, Worcester; Dr. James J. Goodwin, Clinton; Dr. Ray W. Greene, Worcester; Dr. David Harrower, Worcester; Dr. E. L. Hunt, Worcester; Dr. Albert G. Hurd, Millbury; Dr. W. L. Johnson, Uxbridge; Dr. George F. O'Day, Worcester; Dr. Charles B. Stevens, Worcester; Dr. George O. Ward, Worcester; Dr. F. H. Washburn, Holden; Dr. S. B. Woodward, Worcester. Councillor on Nominations: Dr. David Harrower, Worcester; Dr. George O. Ward, Worcester, Alternate.

Taunton.—At a meeting of the Trustees of the Morton Hospital, May 4, 1921, Dr. Joseph L. Murphy was appointed to the Staff.

The babies' clinic of the Woman's Club plans to enlarge its activities during the summer, and will deal with all cases applying for treatment. Under Dr. Arthur R. Crandell, with the assistance of other physicians, the work has grown and has become of great value to the welfare of the city.

A son was born to Dr. Andrew J. and Mrs. McGraw on May 4, 1921.

Massachusetts General Hospital.—A staff clinical meeting was held in the lower out-patient amphitheatre, Monday, May 9, 1921, at 8 P.M.

Program: "Interpretation of the Pyelogram," E. G. Crabtree, M.D.; "Report of Dermatological Cases Treated with X-ray," C. Guy Lane, M.D.; "Preliminary Report of Findings in 2000 Gastrointestinal Examinations," A. S. Merrill, M.D.; "Observations on the Results of Treatment of the Breast with X-ray," K. F. Kesmodel, M.D.

THE BOSTON
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The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

THE CHIROPRACTIC CAMPAIGN.

FOR several years one of the later cults under the title, chiropractic, has been knocking at the doors of this Commonwealth for leave to enter. This system is largely the product of the Palmer School. One of the exponents, J. Shelby Riley, formerly an osteopathic practitioner, came to Massachusetts a few years ago, opened a chiropractic college, taught the distinctive spinal manipulations, and practised among the people. He attempted to confer degrees without first having obtained authority to perform this function. He was prosecuted, convicted, and was obliged to leave the state. It is reported that he is now in Washington, D. C. Other chiropractors were prosecuted and convicted, and were obliged to suspend operations. A few registered physicians claim to be applying this treatment.

The next move was indirect, patterned after military maneuvers, and took the form of a flank attack. Vermont and Connecticut were invaded and capitulated, granting registration to chiropractors, and last winter, both New Hampshire and Rhode Island were attacked. New Hampshire was conquered, but Rhode Island was able to check the progress of the invader. She stands now, according to the testimony of some leading men, in the shadow of the impending renewal of hostilities.

The New Hampshire law defines chiropractic . . . to be the "science of adjusting the course of disease by realigning by hand the twenty-four movable vertebrae of the spinal column or misalignments of the sacro-iliac articulation, releasing pressure on nerves radiating from the spine to all parts of the body and allowing the nerves to carry their full quota of health current (nerve energy) from the brain to all parts of the body."

Three men, one of whom shall be a physician, constitute a board of chiropractic examiners for the purpose of licensing applicants.

The educational requirements are: graduation from a chiropractic school or college which teaches a three-year resident course of six months—each year. Chiropractors may, under the law, adjust by hand any articulations of the spinal column, but shall not administer drugs included in materia medica, or practise major or minor surgery, obstetrics, or any branch of medicine or osteopathy. Under this law, the members of this cult can sign death certificates and treat communicable diseases.

The New Hampshire campaign was engineered by the Palmer School, under the guidance of an eminent lawyer. This school is reported to have an income of three quarters of a million of dollars per year, and is carrying on a propaganda according to well known advertising principles. A part of this course of instruction covers the scheme to "sell chiropractic" to the people.

The campaign in New Hampshire was organized months before the legislative session. Before the passage of this law, New Hampshire juries acquitted chiropractors, and the Collector of Internal Revenue is reported to have said that three chiropractors made returns of larger incomes than any physician in the State.

The method of attack consisted in the presentation of "cured" cases. The hearings were staged in the largest available hall. Cured cases of peptic ulcers, blindness, pneumonia and epilepsy were exhibited, and the audience was impressed favorably, although eminent physicians exposed the illogical claims. All but sixteen of the four hundred and thirty members of the legislature voted in favor of the bill.

The explanation of this stampede seems to be the conviction in the minds of the laity that physicians do not attempt to relieve some of the ills which chiropractors promise to cure.

A recent editorial in the JOURNAL called attention to the advisability of organization in dealing with legislative problems. There will be added to the activities of the Medical Freedom League this organized movement to break down the legal requirements relating to the practice of medicine. Chiropractors may contend that since they do not employ medicines or perform operations, they are not practising medicine. They have practised medicine and, if licensed, will not only use the "chiropractic thrust," but will diagnose and advise. The danger to the people lies in the chiropractic belief that this theory is applicable to the treatment of practically all diseases, and its exponents will temporize with cancer and tuberculosis, just as any poorly equipped practitioner has done in the past.

There are three explanations for the endorsement of the claims of any well advertised cult:

First, the people are impressed with positive claims that any given treatment is effective when supported by lay testimony. This response of the laity kept the patent medicine business on a prosperous basis.

Second, the indisposition of many practitioners to give sympathetic attention to discomforts which are quite definite in the minds of sufferers.

Third, the reluctance of medical men to investigate the application of a treatment and the claims made of favorable results which seem to be unscientific and untrue.

If there is to be any attempt to teach the people the facts, there must be early organization, and plans adopted.

Any effort by physicians should not be inspired by a selfish motive, such as fear of loss of income, rather because of the general purpose of medical practice to promote health and prevent disease or disability. Competent men should be induced to study the claims and practice of the cult, and if there can be found any benefit resulting from the treatment, the principles should be taught to students, and the benefits and limitations clearly defined so that the people may be convinced that the profession is composed of men with open minds. If, on the other hand, there is found to be no physical benefit resulting, other than that derived from massage intelligently applied, disseminate that information, so that the law makers cannot say that they have been left to flounder through uncharted paths.

If the profession is unwilling to meet this movement in an aggressive, scientific and public spirited way, there is only one probable result. If we sit with folded hands, or as pacifists, we must not later deplore a situation to which neglect may have contributed some support. Massachusetts has stood for one standard for all practitioners of medicine, and that standard is based on knowledge of the fundamental sciences upon which the structure of scientific medicine has been built.

POST-GRADUATE COURSE FOR NEGROES

THE FIRST POST-GRADUATE COURSE in Medicine and Surgery for Negroes in the South came to a close at the John A. Andrew Memorial Hospital, Tuskegee Institute, Alabama, at 12 o'clock M., Saturday, April 30, 1921.

The month of April has been a very eventful one for the Tuskegee Institute. Among the occasions, have been the tenth annual clinic, the meetings of the John A. Andrew Clinical Society and the Alabama State Medical Association, and the launching of the Post-Graduate Course in medicine and surgery at the John A. Andrew Memorial Hospital. These events have brought together one of the most notable assemblages of physicians, both white and colored, that have occurred. The meeting has developed that there are white physicians who are willing and anxious to help improve the standing and professional ability of the colored doctors. Many of the best physicians of the South, as well as many northern cities, have given lectures, demonstrations, and operations in an effort to teach the colored men the latest and best methods in treating diseases. The course lasted four weeks.

It was largely through the influence of Dr. L. W. Johnston of Tuskegee, Alabama, President of the Medical Association of the State of Alabama, that we were able to have so many men of such high standing to give this instruction. Among those from a distance were Dr. E. H. Carey, Dean of the Medical Department of Bailer University, Dallas, Texas; Dr. Frank R. Ober, Harvard Medical College, Boston Mas-

sachusetts; Dr. J. Whitridge Williams, Dean and Chief Obstetrician of the Johns Hopkins Hospital, Baltimore, Md.; Dr. James S. Stone of the Children's Hospital, Harvard Medical College, Boston, Massachusetts; Dr. Frederick R. Green, General Secretary, Council on Health and Public Instruction of the American Medical Association, Chicago, Illinois; Dr. M. L. Goodkind of the University of Illinois, Chicago, Illinois; Dr. H. A. Royster, Surgeon-in-Chief of the St. Agnes Hospital, Raleigh, N. C.; Dr. John E. Cannaday, President of the Charleston Hospital, Charleston, West Virginia, and Dr. Fred H. Clark, Secretary of the Medical Association of the Southwest, Oklahoma City, Oklahoma.

We believe that this coming together of the white and colored physicians in the launching of this post-graduate course means that a distinctly new epoch is established in negro medical education.

Principal Robert R. Moton and the Director of the hospital clinic and post-graduate course take this opportunity to extend their sincerest thanks and gratitude to all those who have responded so generously to the call which made it possible to bring about these most satisfactory results.

THE A. M. A. CONVENTION

THE profession will be especially interested in the invitation of the Association of Military Surgeons extended to those who were not in service. Meetings of this Association have been of great interest.

Dr. F. B. Lund, Chairman, requests that the profession of Boston, and particularly of New England, should register on Monday, June 6, 1921, as far as possible, as this will greatly facilitate the work of the Committee of Arrangements.

The Alumni Association of the Jefferson Medical College of Philadelphia will hold a reunion for Jefferson graduates and their friends during the Convention. Dr. Wallace P. MacCallum of 214 Huntington avenue, is acting secretary for the Association.

All members of the Phi Alpha Sigma Medical Fraternity are requested to register at the table assigned to the Fraternity, so that a "get together" meeting can be held. Dr. E. J. G. Beardsley, Secretary, will be at the Hotel Brewster during the Convention.

All members of Base Hospital 89 are cordially invited to register in the Base Hospital Alumni book and be prepared to attend mess at the call of the Secretary, Dr. Walter S. Lucas, who will be at the Hotel Brewster.

The American Orthopedic Association will hold its scientific sessions in John Ware Hall, Boston Medical Library, on June 2, 3 and 4, and a clinical day at the Harvard Medical School, Building B, in combination with the Orthopedic Section of the American Medical Association, on June 6. Sir Robert Jones of England, Professor Vittoria Putti of Italy, and Dr. Jacques Calvé of France, will be guests of the Association.

There will be a reunion of all medical officers who have served at Base Hospital, Camp Devens, in the Students' Room, Building A, Harvard Medical School, on Wednesday evening, June 8, at 7 P.M. Refreshments will be served.

The twenty-ninth annual meeting of the Association of Military Surgeons of the United States will take place June 2-4 in Boston, Mass., with headquarters at the Copley-Plaza Hotel, and the meetings in the Swiss Room there. A cordial invitation is extended to members of the medical profession, irrespective of whether they are members of the Association or not, to attend the meeting, and as the date immediately precedes that of the Convention of the American Medical Association, it gives an opportunity to be present at both during one trip.

MEDICAL NOTES.

THE SEGREGATION OF LEPERS in Louisiana, by the United States Public Health Service, has inspired Frederick L. Hoffman, 3rd vice-president and statistician of the Prudential Insurance Company of America, to write a letter of protest. The objections outlined are as follows: The appropriation of $250,000 is inadequate; the site selected is not suitable, because the more proper location would be on an island, and this contention was supported by the late Dr. Isadore Dyer; the area is too restricted and must be added to with expensive arrangements of fencing and other protective devices, including larger numbers of guards than would be required on an island; insufficient publicity,

with a political taint; questions as to the legality of transfer of these unfortunates; and the ill advised publicity given to the leprosy situation. So far as Massachusetts is concerned, it is quite impossible for the average person to estimate the relative value of these contentions, but this plan has the approval of the State Department of Public Health, and confidence in the ability of the officials directly in contact with this problem leads to the expectation that the experiment has merit.

W. B. Saunders Company, publishers, who are regular advertisers in the Journal, have shown considerable interest in their employees by arranging almost luxurious rest and recreation rooms for the women and men. In addition to useful furniture, there are artistic ornaments, musical instruments, libraries and facilities for electrical cooking. The motto of the Company is, "Work with rather than work for."

"Swat the Fly and smash the nose of the man who coughs in your face," is the order of John Dill Robertson, Health Commissioner of Chicago. Other health officials are putting out equally impressive advice, such as "The fly that hatches in the privy may dine at your table." Physicians should be interested to have the importance of fly extermination presented through the local papers at this season, for one female fly now means millions in July.

John T. Black, State Health Commissioner of Connecticut, has planned the capture of 5,000 rats in New London, for a careful study of the possibility of the presence of bubonic plague. Bridgeport is expected to furnish 10,000. The plan contemplates an appropriation of $30,000.

Waste Oil from oil refineries and steamships is said to be responsible for the death of Lightkeeper Luther Tolland, recently. People who use clams should bear in mind that these bivalves may be the vehicles by which poison from waste oil may be a serious danger to life.

The Board of Directors of the American Society for the Control of Cancer has voted to conduct a campaign of education in response to suggestions contained in a letter from Dr. Powers. The executive committee has decided to launch the campaign in the autumn, soon after the Public Health Institute meetings. Subsequent announcements will give the details. Dr. Edward Reynolds is chairman of the Board of Directors, and Dr. Robert B. Greenough is Regional Director for the New England States.

BOSTON AND MASSACHUSETTS.

Senate Bill 416 provides that an unpaid commission shall be appointed by the Governor to investigate the reasons and causes underlying commitment or admission to any institution under the care or control of the commissions of correction, mental disease, public health, or education, a justice of judicial court, or the parole board, and to recommend legislation or other measures which would tend to decrease the number of persons now in, or who may hereafter be admitted to these institutions. The commission shall report its findings to the Governor not later than the first Wednesday in November.

Senate Bill No. 413 provides for the commitment of an alleged feeble-minded person by a judge of probate, after examination by a physician, to a school for feeble-minded, or to an institution for defective delinquents, or to the custody or care of the Department of Mental Diseases. It is further provided that a parent, guardian or relative of a person so committed may file a petition for a hearing, if the Commissioner of the Department of Mental Diseases discharges such person. The hearing shall be before a probate court, and the petitioner shall pay expense of travel to and from the court. The judge before whom the hearing is conducted shall prescribe the details of proceedings.

Senate Bill 415 provides that the Department of Mental Diseases shall provide for an examination of persons indicted by the Grand Jury for a capital offense, or who is known to have been indicted for any other offense more than once, or to have been previously convicted of an indictable offense and is again indicted by the Grand Jury or bound over for trial, for the purpose of determining the mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. The report of the Department shall be used as evidence before the court and jury.

Dr. James A. Keenan has been appointed to serve as temporary medical inspector in the Boston Health Department, to relieve Dr. Gaetano Prino, who is on leave of absence because of illness.

The Statistical Bulletin of the Metropolitan Life Insurance Co., states that diphtheria prevails in a virulent form throughout the country. This would seem to indicate that boards of health in all large cities might properly try to popularize the Schick test and carry on a propaganda of education.

Dr. L. Vernon Briggs appeared before the Committee on Public Health of the Legislature May 4th, and asked to have the subject of psychiatry added to the list now required by law in the examination of candidates for medical registration. Dr. Briggs contends that medical schools should pay great attention to the teaching of this department of medicine, so that physicians may detect danger signals earlier than is usual at the present time.

For the First Thirteen Weeks of this year the infant mortality rate in New York City is 80 per one thousand born, as against 113 for the corresponding period of last year. This represents a saving of 1132 infant lives. While the Department of Health very fairly says that this decrease in the mortality rate may be due in part to better weather conditions during the winter, and the prosperity of the people, it is felt that the educational propaganda relating to disease has brought about greater appreciation of the need and importance of cleanliness and general hygienic measures, and also to a greater readiness to seek medical advice early. At several Baby Health Stations, the Schick tests are applied free and immunization doses of antitoxin given when indicated. Commissioner Woodward of the Boston City Department of Health, is considering the feasibility of offering the Schick test to the people of his district.

Miss Jessie A. Stowers, referred to in the New York papers as "The Angel of the East Side," will leave her position as assistant superintendent of Gouverneur Hospital June 1. After twenty-six years of service, Miss Stowers contends that the explanation of the shortage of nurses lies in the unsatisfactory conditions incident to a nurse's life, and advocates the system of eight-hour duty periods. Massachusetts organizations are hard at work trying to solve the reason for the shortage of nurses. An important conference was held at the residence of Mrs. Nathaniel Thayer, Wednesday, May 4, attended by representatives of hospitals and medical schools, for the purpose of considering means which may be employed to relieve the situation.

Week's Death Rate in Boston.—During the week ending May 7, 1921, the number of deaths reported was 2.09 against 2.21 last year, with a rate of *14.39 against 14.25 last year. There were 31 deaths under one year of age against 43 last year.

The number of cases of principal reportable diseases were: Diphtheria, 64; scarlet fever, 42; measles, 110; whooping cough, 18; typhoid fever, 4; tuberculosis, 44.

Included in the above were the following cases of non-residents: Diphtheria, 3; scarlet fever, 3; whooping cough, 2; typhoid fever, 1; tuberculosis, 7.

Total deaths from these diseases were: Diphtheria, 4; scarlet fever, 1; measles, 1; typhoid fever, 1; tuberculosis, 21.

Included in the above were the following cases of non-residents: Scarlet fever, 1; tuberculosis, 1.

* Federal census, 1920, used.

The Harvard Medical School Faculty Research Club meets Friday of each week in the Amphitheatre, Building A, Harvard Medical School, 12.30 to 1.30 o'clock. Subjects discussed relate to advance work in medicine. Physicians are invited. Dr. Morton Prince was the speaker May 13th, inst.

State Department of Public Health.—Final arrangements are now being completed for a demonstration in public health organization to be carried out on Cape Cod, with the assistance of the United States Public Health Service. This demonstration was supposed to go into operation May 16, 1921, and will be carried on for a year. The ten towns listed below have joined forces under the name of the "Cape Cod Health Bureau": Barnstable, Bourne, Brewster, Chatham, Eastham, Orleans, Sandwich, Truro, Wellfleet, Yarmouth.

The corps of workers will consist of a full

time health officer, a sanitary inspector, a public health nurse and an office assistant. The nurse and her transportation will be provided by the local Chapter of the Red Cross.

Reports will be made and plans will be subject to approval by the local health boards and the State Department of Public Health, as well as the Public Health Service.

The functions of this staff will be similar to those of a full time health officer and his assistants in a municipality, and they will range from the physical examination of school children to the abatement of nuisances, including the control of communicable diseases, inspection of milk and water supplies, the promotion of child welfare and other clinics in coöperation with established agencies, the inception of maternity and infant hygiene to towns where it is not carried on.

Drs. Henry I. Bowditch and J. E. Henry have given lectures in the course at the Jordan Marsh Company Store during Baby Health Week.

Congressman Towner, who is sponsor for the Sheppard-Towner Bill, providing for maternity care and infant welfare, spoke on his education bill last Thursday evening before the Delta Chapter of the Phi Beta Kappa Society of Tufts College.

Miscellany.

AMENDMENT TO THE TOWNER BILL.

So much criticism of the Towner bill has appeared that an amendment submitted by Senator Moses is to be presented to Congress. The Towner bill has been attacked on the grounds that it is loosely drawn and opens the way to the teaching of birth control and sex hygiene.

All of the bills which provide for a subsidy on condition that the state receiving the subsidy shall agree to appropriate a certain sum of money, are open to the criticism that taxation to provide for these bounties will bear heavily on states with large resources in favor of those states less well off financially.

In the proposed Moses bill, the amount contributed by the Federal Government is a small fraction of the amount needed for the creation and maintenance of suitable hospitals, hence one may feel that a state like Massachusetts could much better arrange for all medical hospitals and be free from any obligations to the Government at Washington, for although the proposed measure leaves approval and control to local officials, one can never foretell developments in connection with a system of government bounties.

The Journal presents the proposed Moses measure with the hope that discussion may result:

AMENDMENT

Intended to be proposed by Mr. Moses to the bill (S. 1039) for the public protection of maternity and infancy and providing a method of coöperation between the Government of the United States and the several states, *viz.*, Strike out all after the enacting clause and insert the following:

That whenever any county in the United States shall have raised, by taxation or otherwise, a sum not less than $5,000 for the purpose of providing and equipping a county hospital, there shall be paid out of the money in the Treasury not otherwise appropriated the sum of $5,000 to the proper authorities in such county for coöperative aid on the part of the Federal Government for the providing and equipping of such hospital; and whenever any such county shall provide annually for the maintenance of such hospital there shall be paid on the part of the Federal Government a sum equal to that provided by such county but not to exceed $5,000.

Sec. 2. That such hospitals shall be under the control of the proper authorities of the counties in which they are located, who shall maintain them in a manner satisfactory to the health authorities of the States. In case the standard thus provided shall not be maintained certification thereof shall be made by the State health authorities to the Public Health Service at Washington, and the moneys herein provided to be paid from the Federal Treasury shall be withheld until certification from the State health authorities is made to the effect that the required standard has been attained by the offending hospital.

Sec. 3. That such hospitals shall be especially equipped for and shall give preference to the care of maternity cases and the treatment of

children, all such cases, however, to be admitted to such hospitals upon application to and the approval of the county commissioners or similar authorities where boards of county commissioners do not exist.

Sec. 4. That such hospitals shall also provide courses in elementary nursing training not to exceed one year in duration; and candidates for such training shall be selected from the pupils of schools in the county where such hospital is located by means of competitive examination after proper application therefor.

Sec. 5. That the moneys provided by Section 1 to be paid shall be paid upon the certification of the Public Health Service, whose Surgeon General is hereby authorized and directed to employ such assistants, clerks, and other persons in the city of Washington and elsewhere, and to purchase such supplies, office material, equipment and fixtures, and to incur such traveling and other expenses as he may deem necessary for carrying out the purposes of this Act. For the first fiscal year following the passage of this Act there is hereby provided the sum of $10,000 for the purposes enumerated in this section.

Sec. 6. That the sums herein appropriated for hospital work shall be paid in equal semi-annual payments on the 1st day of January and July of each year by the Secretary upon the warrant of the Surgeon General of the Public Health Service, out of the Treasury of the United States, to the treasurer or other officer of the county to receive the same; and such officer shall be required to report to the Surgeon General on or before the 1st day of September of each year a detailed statement of the amount so received during the previous fiscal year, and of its disbursement, on forms prescribed by the Surgeon General.

Correspondence.

THE HEARING ON TELEPHONE RATES.

Mr. Editor:—

The hearing on protest of proposed telephone changes has been held and the decision is awaited. We desire to express our personal thanks to all physicians who through their presence, letters, and moral support made the gathering such a success and aroused the attention of the medical fraternity throughout the state.

The Somerville Medical Society, a band of only seventy men, employed eminent counsel and financed this protest because the time was too short to wait for action by the parent society. We feel that the principle involved in this issue is of too much consequence to physicians to be allowed to be cast aside if a decision should be rendered against us.

We are obliged to request for the above reason that any further action, if thought necessary, shall be taken by the proper officers in the Massachusetts Medical Society at its coming meeting and the responsibility lifted from our shoulders.

The personal opinion of the writer is that the word "physician", contended by the telephone company and apparently concurred in by one of the commissioners, to be an advertisement is not such any more than the red light on the top of a fire alarm post is one. That is not an advertisement, but is a designation of a fact to more easily enable persons to obtain assistance in time of trouble. A motion in the parent society that the telephone company be restrained, or enjoined, by legal process from depriving us of the title so many centuries associated with doctors might not be out of place.

Signed: PROTEST COMMITTEE,
H. E. Buffum, Chairman.

NOTICES.

MEDICAL VETERANS OF THE WORLD WAR.—There will be a meeting of the Association of the Medical Veterans of the World War on the day preceding the meeting of the scientific sections of the American Medical Association, the time and place to be announced later. Col. V. C. Vaughan is president of the Association, and Col. F. F. Russell, U.S.A., secretary. All medical officers, contract surgeons of the U. S. Army, and acting assistant surgeons in the United States Public Health Service, who have served in the Medical Corps of the United States Army, United States Navy and United States Public Health Service, and all members of medical examiners of local, medical advisory and district boards, officially appointed by the President of the United States, the Provost Marshall General of the United States Army, and the Governors of the various states are eligible to membership in this organization. The object of this Association "is to perpetuate fellowship, to prepare history, secure coöperation for the mutual benefit of the medical men who served in the World War, 1914-1918, and for the mutual improvement and social intercourse of its members."

BIGELOW MEDAL ADDRESS.—Dr. William J. Mayo will give an address entitled "In the Time of Henry Jacob Bigelow," on Monday, June 6, 1921, at half past eight o'clock, Jordan Hall, Huntington Avenue and Gainsboro Street, Boston. On this occasion will be made the first award of the Henry Jacob Bigelow medal. Tickets of admission may be secured by addressing Dr. Walter C. Howe, Secretary Boston Surgical Society, 303 Beacon St., Boston, Mass.

THE NEW ENGLAND WOMEN'S MEDICAL SOCIETY will meet on Thursday, May 19, at 8 P.M., at the home of Dr. Bigelow, 14 Warren Square, Jamaica Plain. Speaker: Dr. Anna Quincy Churchill; subject: Heredity, with Special Reference to the Laws of Mendel. Light refreshments will be served.

ALICE H. BIGELOW, M.D., *Secretary.*

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—The regular weekly meeting of th Research Club was held Friday, May 13, from 12.30 to 1.30. Dr. Morton Prince was the speaker. Subject: The Experimental Study of Hallucinations.

RECENT DEATHS.

DR. FRANKLIN WALLACE EDWARDS died April 29, 1921, in Worcester. He was born in Wheeling, West Virginia, graduated from Rush Medical College of Chicago, and practised meany years in Southbridge. He leaves his widow, daughter, and brother, the last, J. G. Edwards of Chicago.

PURITY
SAFETY
ENDOARSAN (Syphilis) Dimethylarsenate Mercury Iodides. Phosphorus
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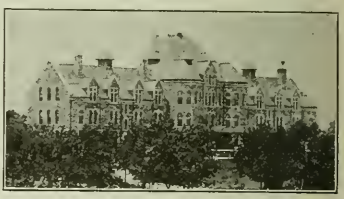

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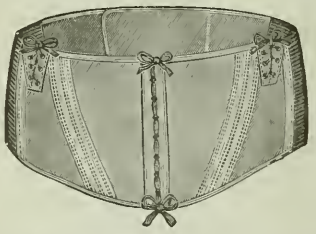

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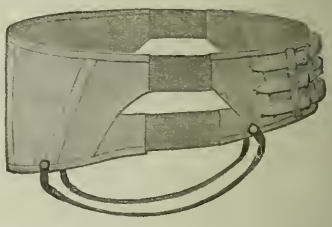

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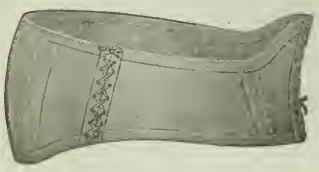

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